

# Claims

- [c1] What is claimed is:
1. A welding power source comprising:  
an output mode selector; and  
a selector circuit configured to electronically energize at least one output terminal based on a user input to the output mode selector.
  - [c2] 2. The power source of claim 1 wherein the output mode includes one of a constant current mode and a constant voltage mode and the at least one output terminal includes a pair of output terminals.
  - [c3] 3. The power source of claim 1 wherein the selector circuit includes a first set and a second set of electronic switches, wherein the first set of electronic switches is configured to be activated when a first output mode is selected and the second set of electronic switches is configured to be activated when a second output mode is selected.
  - [c4] 4. The power source of claim 3 wherein the first set and the second set of electronic switches include SCRs.

- [c5] 5. The power source of claim 3 wherein each set of electronic switches includes a single topology of electronic components.
- [c6] 6. The power source of claim 1 wherein the selector circuit is configured to receive an AC power input from any number of phases.
- [c7] 7. The power source of claim 1 further comprising a common negative terminal.
- [c8] 8. A welding power source output mode selector assembly comprising:  
a power input;  
a first inductive element connected to a first mode output and connectable to the power input;  
a filter circuit connected to a second mode output and connectable to the power input; and  
a plurality of electronic switches wherein activation of a first set of electronic switches causes an electrical connection between the inductive element and the power input, and wherein activation of a second set of electrical switches causes an electrical connection between the filter circuit and the power input.
- [c9] 9. The assembly of claim 8 wherein the power input includes an AC input of any number of phases.

- [c10] 10. The assembly of claim 8 wherein the first mode includes a constant current output.
- [c11] 11. The assembly of claim 8 wherein the second mode includes a constant voltage output.
- [c12] 12. The assembly of claim 8 wherein the plurality of electronic switches includes a plurality of SCRs.
- [c13] 13. The assembly of claim 8 wherein the filter circuit includes a second inductive element, and wherein the first inductive element and the second inductive element share a magnetic assembly.
- [c14] 14. The assembly of claim 8 wherein the plurality of electrical switches are of a common topology.
- [c15] 15. The assembly of claim 8 where the plurality of electrical switches is arranged in one of a single control bridge and a pair of electrically isolated control bridges.
- [c16] 16. The assembly of claim 15 wherein the single control bridge includes one of a full control bridge and a half control bridge.
- [c17] 17. The assembly of claim 15 wherein the single control bridge includes one of a common negative output and a common positive output.

- [c18] 18. A method of electronically selecting an output of a welder, the method comprising the steps of:  
receiving a user input identifying a desired output mode;  
from the desired output mode, selectively biasing a set of electronic components; and  
energizing either a CC output terminal or a CV output based on the set of electronic components biased.
- [c19] 19. The method of claim 18 further comprising the step of biasing the set of electronic components with an AC input with one or more phases.
- [c20] 20. The method of claim 18 wherein the set of electronic components includes a plurality of SCRs.
- [c21] 21. The method of claim 18 wherein the set of electronic components includes a plurality of switches of common topology.
- [c22] 22. The method of claim 18 further comprising the step of biasing another set of electronic components and energizing the other of the CC output terminal or CV output terminal based on the another set of electronic components biased.
- [c23] 23. A kit to retrofit a welder power source to permit electronic selection of an output mode, the kit compris-

ing a circuit having a plurality of electronic components such that a first output terminal of the power source is energized when a first set of electronic components is activated and a second output terminal of the power source is energized when a second set of electronic components is activated.

[c24] 24. The kit of claim 23 wherein the plurality of electronic components is of a mixed topology.

[c25] 25. The kit of claim 23 wherein the circuit includes a pair of output inductors wherein each inductor has a respective magnetic assembly.